

Appl. No. 09/324,823
Response to Office Action Mailed October 19, 2005

STATUS OF THE CLAIMS:

This listing of claims reflects all prior versions, and listings, of claims in the application:

1. (Previously Presented) A solid-state image sensor device having an image sensing portion performing photoelectric conversion in both progressive mode in which all picture element signals are output independently, and interlaced mode in which interlaced scannings are performed and the picture element signals obtained in respective scannings in said image sensing portion are superimposed, said sensor device comprising:
 - a photodiode within the image sensing portion; and
 - a substrate-bias generation circuit for applying a bias voltage to the substrate of said image sensing portion and for controlling said bias voltage in said progressive mode to be smaller than the bias voltage while operating in the interlaced mode; and
 - wherein the applied bias voltages are chosen such that a saturation signal quantity in the progressive mode is substantially equivalent to that in the interlaced mode.

2. (Previously Presented) A driving method for a solid-state image sensor device having an image sensing portion including a photodiode within the image sensing portion for performing photoelectric conversion said image sensing portion operating in both progressive mode in which all picture element signals are output independently, and interlaced mode in which a plurality of scannings are performed and picture element signals obtained in respective scannings are superimposed, said method including applying a bias voltage to the

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substrate of said image sensing portion, wherein during said progressive mode said bias voltage is smaller than that in said interlaced mode; and wherein the applied bias voltages are chosen such that a saturation signal quantity in the progressive mode is substantially equivalent to that in the interlaced mode.

3. (Previously Presented) A camera comprised of a solid-state image sensor device having an image sensing portion for performing photoelectric conversion and a substrate-bias generation circuit, an optical system receiving incident light from a subject and forming an image on said image sensing portion of said solid-state image sensor device, a driving system for driving said solid-state image sensor device, and a signal processing system for processing the signal output from said solid-state image sensor device to obtain a video signal, wherein the image sensing portion includes a photodiode structure, and further

wherein said driving system selectively operates in progressive mode in which all picture element signals are output independently, and interlaced mode in which a plurality of scannings are performed and the picture element signals obtained in respective scannings are superimpose, and wherein the bias voltage applied to the substrate in said progressive mode is smaller than that in said interlaced mode; and

wherein the applied bias voltages are chosen such that a saturation signal quantity in the progressive mode is substantially equivalent to that in the interlaced mode.

4. (Previously Presented) The solid state image sensor device of claim 1, wherein the substrate bias generation circuit adjusts the substrate bias voltage during the

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progressive mode of operation such that a potential difference is generated between a doped region and a well of the photodiode which is greater than during interlaced operation and further wherein the photodiode is a hole accumulation diode.

5. (Previously Presented) The method of driving a solid state image sensor device of claim 2, wherein the step of applying the substrate bias voltage during the progressive mode of operation is performed such that a potential difference is generated between a doped region and a well of the photodiode which is greater than during interlaced operation and further wherein the photodiode is a hole accumulation diode.

6. (Previously Presented) The camera of claim 3, further comprising: applying the substrate bias voltage during the progressive mode of operation such that a potential difference is generated between a doped region and a well of the photodiode which is greater than during interlaced operation and further wherein the photodiode is a hole accumulation diode.

Claims 7 - 18. (Canceled).